

# THE HOME PICKLING OF OLIVES

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This leaflet has been prepared in response to requests for information on the pickling, canning, and curing of olives in the home. The aim herein has been to give simple, concise working directions for processing; more detailed discussion of some of the methods is found in Bulletin 678, Circular 276, and Extension Circular 37.<sup>3</sup>

## ONE-LYE PROCESS FOR RIPE OLIVES

The fruit chosen for this type of ripe olive should be cherry red. Black-ripe fruit should not be used, as it is likely to become soft when pickled. This process will produce yellow or brown olives.

1. Prepare a solution by weighing out 2 ounces (about 4 level tablespoons) of lye per gallon of water.<sup>4</sup> This is easily done by dissolving a 12-ounce can of flake lye (household lye) in 6 gallons of water. Stir the solution until the lye is well dissolved. Use a wooden or stoneware container. Never use an aluminum container, for lye will ruin it; nor a galvanized metal one, as the zinc will dissolve and may make the olives poisonous.

Caution: Have near by a cup of vinegar in which to rinse the hands if the lye solution

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<sup>3</sup>Vaughn, Reese, H., Howard C. Douglas, and J. Richard Gililland. Production of Spanish-type green olives. California Agr. Exp. Sta. Bul. 678:1-82. 1943.

Cruess, W. V., and A. W. Christie. Home canning. California Agr. Exp. Sta. Cir. 276: 1-48. Revised 1942.

Joslyn, M. A., and W. V. Cruess. Home and farm preparation of pickles. California Agr. Ext. Cir. 37:1-24. Revised 1943.

<sup>4</sup>One ounce by weight of flake lye is approximately equivalent to 2 level tablespoons. One ounce by weight of salt is approximately equivalent to 1  $\frac{3}{5}$  level tablespoons. One level measuring cup is equivalent to 16 level tablespoons. The particle size of a given weight of lye or salt will influence the equivalents in tablespoon measurements and, in turn, measuring-cup measurements; for this reason, it is recommended that the materials be weighed whenever possible.

comes in contact with the skin. (See precautions under "Antidotes for Lye Burns.")

2. Cover the olives with the lye solution early in the morning. Place over them a towel or a cloth and draw it tight enough to keep them submerged. Let the olives stand, stirring them once every 2 or 3 hours until the lye reaches the pits at all points. This condition is judged by cutting sample olives to the pit with a sharp knife at intervals of 1 or 2 hours. The flesh should be discolored by the lye. It will usually take 10 to 12 hours for the pits to be reached. If the lye has not reached the pits by bedtime, remove the lye solution and cover the olives with water. Next morning apply a solution of 1 ounce (about 2 level tablespoons) of lye per gallon of water and let stand until the lye reaches the pits thoroughly.

3. Remove the lye solution and discard it.

4. Rinse the olives twice in cold water; then cover them with cold water. Change the water twice a day until the lye no longer can be tasted in the olives; this usually takes about 7 or 8 days.

5. Now prepare a salt brine of 4 ounces (about 6  $\frac{1}{2}$  level tablespoons) of salt per gallon of water. Dissolve the salt thoroughly and cover the olives with the solution. Let this stand for 1 week. The olives are then ready for use. They should be kept in a cold place.

6. If all the olives are not to be used within a period of 2 weeks, prepare a brine of 8 ounces (about 13 level tablespoons or slightly more than  $\frac{3}{4}$  measuring cup) of salt per gallon of water. Store the olives in this brine for 1 week. At the end of the week replace the brine with a solution of 1 pound of salt per gallon of water (26 level tablespoons or about 1  $\frac{2}{3}$  measuring cups per gallon). Change this, after 10 to 12 days, with a fresh brine of 1 pound of salt per gallon of water.

Thereafter, until all the olives are used, replace the brine with fresh brine of 1 pound of salt per gallon of water, once a month. When the olives are to be served, soak them overnight in water and use them within 3 days.

Caution: If at any time the olives become moldy, or "smell bad," or are soft, do not eat or even taste them. (See precautions under "Disposal of Spoiled and Suspected Olives.")

### THREE-LYE PROCESS FOR RIPE OLIVES

The process described below is more complex than the one just described; its purpose is to make the olives dark brown or black in color.

1. First lye treatment: Prepare a lye solution of 2 ounces (about 4 level tablespoons) per gallon of water, as in the lye process already described. Pour it over the olives. Let it stand until it penetrates the skins and about 1/32 to 1/16 inch into the flesh. Remove the lye solution. Expose the olives to the air in the tub or crock (jar) in which they were lye-treated. Stir the olives three times a day. Leave them for 3 days.

2. Second lye treatment: Prepare a solution of 1 ounce (about 2 level tablespoons) of lye per gallon of water. Pour this over the olives. Let the solution penetrate about 1/8 to 3/16 inch. Remove the lye and expose the olives to the air for 2 days.

3. Third lye treatment: This solution is of the same strength as for the second lye treatment. Pour it over the olives. Let it penetrate thoroughly to the pits. This will usually require 6 to 12 hours. Then expose the olives to the air for 1 day.

4. Cover the olives with water; change water twice daily until the olives are free of lye to the taste (7 to 8 days).

5. Cover olives with brine as described in directions 5 and 6 of the one-lye process.

### HOME CANNING OF RIPE OLIVES

While the home canning of olives is not recommended because of the hazard to health and life that may result from improper sterilization, it is recognized nevertheless that canning of olives in the home will be continued. Because of this realization, the following directions for canning of ripe olives are given to eliminate as far as possible the danger of spoilage or of food poisoning.

The procedure is as follows: Pack the olives in glass jars, filling to within 1/2 inch of the top; or in tin cans, filling to within 1/4 inch of the top. Prepare a brine using 4 ounces (about 6 1/2 level tablespoons) of salt per gallon of water. Heat the brine to boiling and pour it over the olives to completely cover them. This will leave about 1/2 inch head space for the jars and 1/4 inch head space for the cans.

Place the containers in a pressure cooker and sterilize, proceeding as directed below:<sup>5</sup>

#### Choose a Suitable Rack

Use a steady rack in the cooker bottom. The

<sup>5</sup>Instructions for using the pressure cooker are quoted in part from: Faust, Hilda. Home canning. California Agr. Ext. Nutrition Program Leaflet. 8 pages. Revised July, 1945.

rack may be very shallow but must have openings; it must not be a solid piece of wood or metal. If made of wire, the bands must be close enough together so that a jar cannot tilt or have an edge touch the bottom of the cooker. For two layers of jars, use a second rack high enough to separate the layers.

#### Have Enough Water in the Cooker

Water is necessary to form steam for exhausting the jars and for the processing period. Use about 2 or 3 inches of water. Have enough to keep the cooker from boiling dry. The water may come up on the jars or cans to about 2 inches from their tops. The amount to use will vary with the height of the rack, the size of the jars, the number of jars, and the diameter of the cooker. The rack used with low jars should be high enough to permit the use of at least 2 inches of water.

Bring the water to a boil and keep it hot while preparing the olives for canning.

#### To Exhaust the Filled Jars

To exhaust is to drive out the air. If a rubber ring is used, have the wet rubber ring in place on the jar or lid, according to the type, and place the lid on the jar. With a screw band over a glass lid, or with a zinc cap, screw on the band or cap very loosely, just starting it in its groove. With the lightning-type jar, leave the short wire up. If a metal lid having sealing compound is used, leave the new lid off the jar but place another lid on for the exhausting. Leave the lids off tin cans.

Put the jars on the rack in the cooker. The jars or cans may stand in water up to about 2 inches from the tops. Leave space between them so that steam can circulate about them.

Place the lid on the cooker; leave the lid unfastened, and the petcock open, or the vent pipe uncovered. Bring the water in the cooker to a boil. Do not let the water boil into the jars.

Keep the jars in the steam (exhaust the jars) for 10 minutes. Remove the lid from the pressure cooker. Immediately tighten the jar lids completely: with glass lids, screw down the bands or lower the bails; screw down zinc lids; place on the jars the scalded new metal lids that have sealing compound and screw down the band firmly or, if economy-type, put on the clamps. Seal tin cans: place a lid on each can and use a can sealer.

#### Exhaust the Cooker Long Enough

Before processing the jars, drive all the air out of the cooker by letting the steam escape: (1) Arrange the hot, filled jars on the cooker rack so that they do not touch each other or the cooker wall. (2) Completely fasten the cooker lid, leave the petcock open or the vent pipe uncovered, and let a stream of steam escape



from the petcock for at least 10 minutes. (Air prevents the temperature from becoming as high as it does at a given steam pressure and will cause uneven heat distribution.)

#### To Process

Close the petcock or put on the weighted gauge. Begin to count time after the required pressure is reached. Control the heat to keep the pressure constant at the desired point, namely, 10 pounds (240° F) or slightly above. Process for 60 minutes. For each 1,000 feet elevation above sea level increase the pressure by 1/2 pound. If the pressure falls below that recommended, the olives may not be safe to use.

#### To Release the Steam

Turn off the heat or remove the cooker from the heat without tilting it. Do not set on a cold surface.

Let the pressure return to zero before opening the petcock. Open the petcock gently and gradually. Preferably wait 1 or 2 minutes after the pressure has reached zero before opening the petcock, if glass jars have been used, but do not wait longer.

#### To Cool and Open the Cooker

Preferably allow the cooker to cool for 15 minutes after the petcock has been opened before releasing the lid of the cooker, if glass jars are inside. In removing the cooker lid, lift first the side farthest away so that the lid may protect you against steam.

If it took more than 20 minutes for the gauge to return to zero, however, this wait may be omitted. If the lid is removed immediately after the steam is released through the petcock, let the jars cool for 10 or 15 minutes before lifting them out.

Do not let a draft strike the jars.

If cans are used, open the petcock and remove the pressure cooker lid when the pressure has returned to zero, and plunge the cans into cold water.

#### To Remove the Jars

Do not in any way disturb the seal of a jar after this processing. The attempt to tighten the lid of a sealed jar when it has just been removed from the cooker is almost certain to cause spurting or bursting. Use a jar lifter, or a cloth such as a dish towel, in lifting the jars from the cooker to the table. Hold the towel over the top of the jar.

Bubbling within the jar on removal from the cooker after the jars have cooled somewhat in the cooker, shows that the contents are boiling under vacuum, a sign of a good seal.

**Caution:** When a jar of these olives is to be used, before tasting or using, empty contents into a pot and heat to boiling temperature and

boil for 15 minutes; cool by placing the olives in cold water. This heating will prevent any possibility of botulinus poisoning.

#### CANNING RIPE OLIVES WITH ACID

Olives may be sterilized by the boiling-water bath method if the brine used is acidified with vinegar. The process is as follows:

Pickle the olives as previously described for the one-lye or the three-lye processes. Prepare a dilute brine of 1/3 pound of salt per gallon (roughly 2 level tablespoons per quart of water). To 3 quarts of the brine add 1 quart of vinegar, or prepare any other amount with 1 part of the vinegar to 3 parts of brine. Use only well-known brands of vinegar from the store labeled as 50-grain strength (equivalent to 5 per cent acidity); never use homemade or bulk vinegar as it may be too weak and may result in spoilage or possible food poisoning.

Place the olives in hot, scalded jars. Leave head space of about 1/2 inch. Heat the brine to boiling and pour it into the jars to within 1/2 inch of the top. (Plain, unenameled tin cans should not be used for this method of canning olives as the salt and vinegar will corrode them.) Metal lids that seal with sealing compound are fastened tightly by means of the metal screw band. Partly seal glass lids that have a screw band. Leave the bail of glass top lightning-type jars in "up" position. (It is not advisable to use the porcelain-lined zinc screw-on lid because of rapid corrosion of the zinc by the vinegar.)

Place the closed jars on a jar rack, or on a towel or false bottom in the vessel to be used for the hot-water bath. If a false bottom is used it must be perforated with sufficient holes to allow good circulation. Have the water come over the tops of the jars at least 1 inch.

Bring the water quickly to boiling or, preferably, have the water boiling or nearly so when the jars of olives are placed in the water bath. Boil the water steadily. Keep the water bath covered with a lid. Process the jars of olives for 60 minutes, counting time after the water begins to boil.

After processing, remove the jars from the bath with a jar lifter or ladle off part of the water so they can be lifted out with a cloth used to protect the hands. If a jar rack is used, all the jars can be lifted out at one time. Do not set the jars on a cold surface or in a draft.

Do not open any of the jars to replace lost liquid. Jars closed with glass lids and rubber rings need the tops tightened further before the jars have cooled.

After the jars have cooled, store them in a cool place.

When a jar of the olives is to be used, empty

contents into a pan and boil for 10 minutes, counting time after active boiling commences. Pour off the brine; cover with cold water to cool the olives and to soak out some of the vinegar.

These olives will be tart to the taste. They are greatly improved for most persons if they are rolled in olive or salad oil containing chopped garlic or other seasoning and are then allowed to stand overnight with the oil and seasoning before serving.

#### DRYING RIPE OLIVES

Pickled ripe olives may be dried in a home dehydrator or in the sun until bone dry. In the dehydrator, dry at 145° — 150° F. They then keep well in bags, glass jars, or metal containers, and are eaten without rehydrating (soaking). They are principally "skin and bone," and oily; but they are pleasing in flavor and high in caloric value owing to their high oil content.

#### FREEZING OF RIPE OLIVES

If one has a frozen food locker, it is feasible to preserve pickled Mission olives by freezing; other varieties soften very badly on freezing and thawing. Proceed as follows:

Using olives pickled by the one-lye or the three-lye process, cover them with brine containing 4 ounces (about 6 1/2 level tablespoons) of salt per gallon and then boil them for 10 to 15 minutes. Discard the brine and chill the olives in cold water. The purpose of the boiling is to minimize softening on freezing. Then pack without brine in locker-plant cartons, glass jars, friction top cans, or used coffee cans. The package should be moistureproof and vapor tight to prevent drying out. Seal the used coffee cans with scotch tape. The other containers are sealed tightly in the usual manner. Then have the packaged olives quick-frozen and stored in the frozen-food locker.

To use, allow the olives to thaw thoroughly before serving. If desired, roll the thawed olives in olive or salad oil mixed with chopped garlic or other seasoning; let stand overnight and serve.

#### GREEK-STYLE OLIVES

Olives prepared Greek style are generally made from mature olives (any variety) that are dark red to black in color. The olives are salt-cured and therefore are somewhat shriveled in appearance. One must acquire a taste for them as they are salty and slightly bitter. They are, however, very rich in food value. Prepare them as follows:

1. Obtain some half-ground rock salt (ice-cream freezer salt).

2. Cover the bottom of a wooden box with burlap.

3. Weigh the olives. For each 2 pounds of olives, weigh out 1 pound of rock salt. Mix the salt and olives well in the wooden box. Pour a layer of salt over the olives to a depth of about 1 inch.

Caution: Place the box outdoors so that the brine formed will not ruin the kitchen floor.

4. At the end of a week, pour the salt and olives into another box, then replace them in the first box to mix them. Thereafter repeat this mixing process once every 3 days until the olives are cured and edible; this usually takes about 30 to 35 days.

5. Sift out most of the salt on a half-inch screen. Dip the olives momentarily in boiling water. Drain. Let them dry in air overnight. Put them in a large pan or box and sprinkle a little olive oil over them. Work the olives with the hands to coat all with oil.

6. To each 10 pounds of olives add about 1 pound of rock salt. Mix and put the olives in a cool place. Use within a month, or store in a refrigerator until used. This type of olive is useful in the flavoring of such dishes as stews and spaghetti, and as a relish.

#### SPANISH-STYLE GREEN OLIVES

The Spanish-style green olive is identified by its green skin, light flesh, and light brownish-buff pit. It has a characteristic flavor and aroma imparted by lactic acid fermentation; these in common with the inherent qualities of the fruit make it sought as an appetizing pickled olive in the United States, where it has found favor for many years. Fruit from any variety picked while immature and specially processed comes under this category; the Sevillano and Manzanillo varieties, however, are most often used. The essential steps in the preparation are as follows:

1. The olives to be used in this process are picked when green to straw yellow in color. Care should be taken to avoid bruising, for all such marks are accentuated in the pickled fruit.

2. The olives are then sorted according to size, or they may be prepared for pickling from "orchard run" fruit which has not been size-graded. It is important to discard all defective fruit.

3. The sorted fruit is placed at once in a lye solution to destroy the bitterness. Queen olives (the Sevillano variety) are treated in a solution made with 1 3/4 to 2 ounces (3 1/2 to 4 level tablespoons) of lye per gallon, as they frequently blister and peel when treated with too strong a solution. The Manzanillo and Mission varieties, which are more bitter than other



varieties--but are not subject to peeling--are treated in a stronger solution made with 2 1/4 to 2 3/4 ounces (4 1/2 to 5 1/2 level tablespoons) of lye per gallon.

4. The lye is allowed to penetrate, on the average, about three fourths of the way to the pit of the olives. Penetration is judged by cutting olives to the pit with a knife and observing the extent of the discolored flesh.

5. When lye penetration is completed, the lye solution is removed and quickly replaced with cold water. The water used for leaching out the excess lye is changed at 4- to 6-hour intervals during a 24- to 30-hour period. Avoid too prolonged washing and undue exposure of the fruit to the air as undesirable darkening of the olives may result.

6. After leaching has removed the excess lye the olives are packed in suitable containers as rapidly as possible and are covered with a salt solution containing 1 pound (about 26 level tablespoons or 1 2/3 measuring cups) of salt per gallon. The number and size of the containers chosen will depend upon the quantity of olives. One gallon of olives in brine contains about 5.5 pounds of fruit.

7. After the olives have been placed in suitable containers and covered with salt brine, they should be stored where the average temperature does not exceed 100° F. Fermentation will be most rapid at temperatures between about 70° and 90°. Glass-top fruit jars (not smaller than 1 quart) may be used; or, for larger quantities of olives, 5-gallon kegs or larger-sized oak barrels may be used as containers.

8. The containers of olives must be kept full of brine at all times. During the period of active fermentation, when gas formation causes excessive foaming and frothing, care must be taken to replace the brine lost.

Later, when gas production is not so violent, the closures should be tightened firmly enough to exclude air and thus keep film yeast and mold growth at a minimum. All brine lost must be constantly replaced. This brine should contain about 9 1/2 ounces (about 15 1/4 level tablespoons or a scant measuring cup) of salt per gallon of water.

9. If Manzanillo or Mission varieties are being pickled, supplementary sugar may have to be added to the brine. Corn sugar, corn sirup, cane or beet sugar or sirup may be used. The sugar should be added at the rate of 1 1/2 level teaspoons per gallon. The sirup should be added at the rate of 2 level teaspoons per gallon.

Sugar or sirup should not be added until the fermentation has been under way for at least 4 days. The desired acidity depends upon the conversion of sugar to lactic acid. Additional sugar may be necessary to attain this desired acidity.

10. Since the development of the desired degree of acidity of the fermented olives depends upon the presence of lactic-acid bacteria, it

may be necessary to add "starters" of these bacteria which are contained in bulk (unheated) dill pickle or sauerkraut brine. This brine should be added at the rate of 6 fluid ounces (about 3/4 measuring cup) per gallon of olives and brine. The addition of this "starter" is particularly recommended for the Mission and Manzanillo varieties, and is sometimes required for the fermentation of the Sevillano.

11. On completion of fermentation, as determined by development of the desired acidity and taste characteristic of Spanish-style green olives (note precaution below), the containers should be completely filled with brine, closed tightly, and stored in a cool place until the olives are used.

12. Any fermenting olives which develop a rancid, foul odor should be discarded. When any doubt whatsoever is felt concerning the edibility of the olives they should be discarded. This is a cardinal rule which should apply for all home-pickled or canned foods.

### SICILIAN-STYLE OLIVES

Sicilian-style olives are fermented and have about the same characteristics as the Spanish-style olives already described, yet differ in that they are somewhat bitter because they are given no lye treatment and are prepared in a spiced brine. These olives are sold chiefly in the Italo-American trade but many Anglo-Saxon Americans also like them. Their preparation is as follows:

1. Use green olives of any variety.

2. Place them in a barrel or glass-top fruit jar.

3. Add dill-pickle spices from a grocery store--about 1 rounded tablespoon per 2-quart jar, or 1 level tablespoon per quart. Also add a little (1/2 level teaspoon per quart) fennel seed, or add a sprig of fresh fennel or dill. Some prefer to make a "hot" seasoning by adding whole pepper corns and whole red peppers to taste.

4. Prepare the same salt solution described for Spanish-style green olives. To each 10 pints of solution add 1 pint of vinegar, and fill the jar or barrel with this brine. Store the container of olives at about 70° F.

5. Seal the container; but, once a week loosen the bung or the lid to let the gas escape. Replace any lost brine as directed for green olives.

6. When all gas formation ceases (usually in 2 to 3 months) seal and store until the olives are of the desired flavor. The total period from the time of filling the barrel or jar to completion of the process is usually 4 to 6 months. The olives will remain somewhat bitter and will acquire a flavor somewhat like that of Spanish-style green olives, yet will be pleasingly different if spiced.

Caution: Any olives that develop a rancid or foul odor should not be tasted. Discard them.

#### DISPOSAL OF SPOILED AND SUSPECTED OLIVES

Botulism is a food poisoning which results in a very large percentage of fatal cases. It is caused by ingestion of poison produced by botulinus bacteria growing in low-acid foods in the absence of air. Low-acid foods include vegetables, meat, poultry, and fish, for the most part. Figs and pickled ripe olives also are low-acid fruits. All low-acid foods including pickled ripe olives require special precautions after home canning. These precautions are as follows:

1. Boil all home-canned ripe olives before tasting or feeding to others. The poison produced by the botulinus bacteria is destroyed by boiling. To boil, empty the olives into a pan and place directly over the source of heat. Stir the olives frequently. Boil steadily for at least 15 minutes, counting time after boiling has begun. Add more liquid during boiling if necessary but allow additional time if the liquid ceases to boil on addition of more liquid. At altitudes above 3,000 feet boil the olives for at least 25 minutes.

Smell the olives while boiling them. Any sour, rancid (stale butter smell) or putrid off odor is made more noticeable by boiling.

2. Never taste any home-canned olives that are moldy, have an off odor, show gas pressure in the cans or jars, or show corrosion of the cans or jar lids. Olives in bulging or rusted cans, jars with bulging or rusted lids, or jars with liquid oozing from under the lid, must be destroyed.

3. Spoiled or suspected olives in opened home-canned tin or glass containers can also be rendered safe for disposal by processing in the pressure cooker. The can or jar, if bulging, must be opened carefully to prevent discharge by gas pressure of brine which may be ingested; i.e., taken into the mouth wittingly or unwittingly. This is best accomplished by puncturing the top of the can or the lid of the jar with an ice pick or other sharp instrument, taking care to have the container top adequately wrapped with a towel or other cloth to avoid spurting out of liquid. The towel or other cloth is then disposed of by burning. The containers of olives thus relieved of gas pressure are safe for processing in the pressure cooker. Process the spoiled or suspected olives at 10 pounds' pressure (240° F.) for 15 minutes. (Follow the directions already given for operation of the pressure cooker.)

After processing, the liquid contents are disposed of as sewage and the container and contents may be discarded as garbage, or the glass jar may be recovered and used again.

Scrupulous care must be taken to prevent drops of spoiled or suspected olive brine from coming in contact with open cuts, broken skin areas and mucous surfaces (mouth and eyes). A small drop of poisonous liquid is extremely dangerous to human beings or animals.

4. Alternative procedures for disposal are to burn the food and its container in a furnace, boil in soapsuds, or in a lye solution, or add lye and bury. Keep lye out of reach of children and animals, and handle it with care (see precautions below).

The poison may be destroyed by placing the opened jar, together with its lid, screw-band, etc., or can of olives on its side in an old pail or pan, not of aluminum, and boiling it in strong soap solution or lye.

a) To boil in soap solution, make a strong solution of soap (2 1/2 to 3 measuring cups per gallon) and water. Keep the jar and its contents covered with soap solution during the entire boiling period. Boil for 1/2 hour, counting time after boiling starts.

b) To boil in a lye solution, use 2 level tablespoons of flake lye per quart of water. Keep the jar completely covered with the lye solution. Boil for 10 minutes, counting time after boiling commences. After boiling in either soap solution or lye, pour the liquid down the drain, flushing it with plenty of water, and discard the olives in the garbage. The jar may be used again or discarded.

c) To add lye and bury, mix 2 level tablespoons of flake lye with the contents of the container of olives. Allow to stand for one day and then bury the can or jar and its contents deep enough to insure that children or pets will not dig it up until the caustic action of the lye has entirely disappeared.

5. Never feed animals or poultry spoiled or suspected home canned olives. Never ask someone else to taste olives you, yourself, do not care to taste.

6. If someone has tasted or eaten spoiled or suspected home-canned olives, contact the city, county, or state health department immediately. Save a sample of the olives for laboratory examination by keeping it in a clean glass jar, preferably in a refrigerator.

#### ANTIDOTES FOR LYE BURNS

If lye solution has inadvertently caused burning or has been swallowed, the following precautions are necessary:

1. Administer vinegar, lemon, orange, or other acid fruit juice until lye appears to be neutralized.

2. Administer white of egg or milk by mouth.

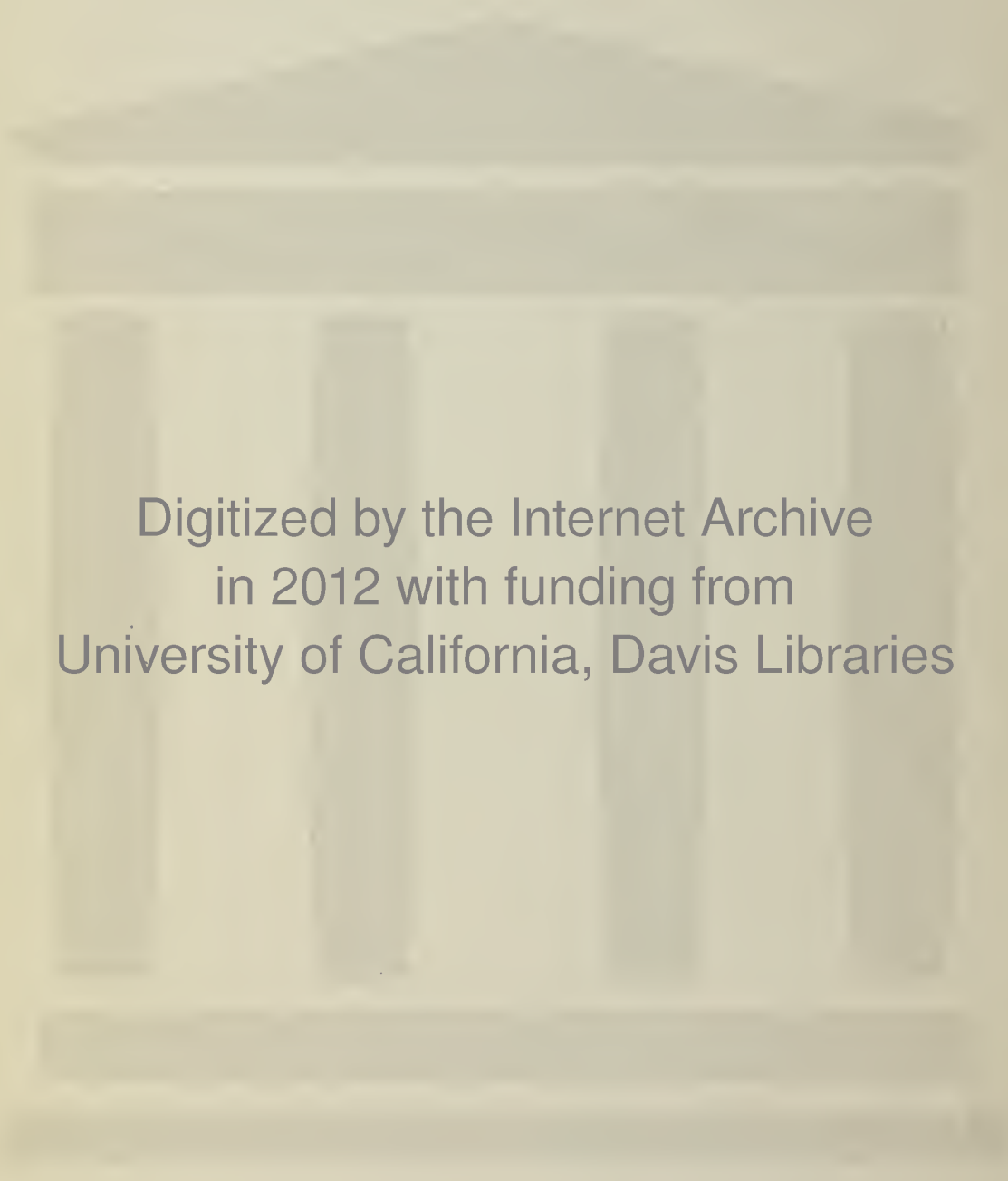
3. Do not induce vomiting.

4. Combat shock by placing person affected

in reclining position with head lower than body and wrapping with blankets.

5. Call the family physician.

If lye solution has inadvertently been splashed into the eye, flush the eye in a stream of running water, bathe the eye with boric acid solution, and call the family physician.



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